

the interview, Examiner Edmondson tentatively agreed that the rejections of independent claim 24 would be withdrawn, but indicated that she would need to review Applicants' arguments in writing before making a decision on the rejections of independent claims 31 and 32. Accordingly, the arguments submitted during the interview are reiterated below.

1. Claims 24 and 31-33 were rejected under §103(b) over Tsuno. This rejection is respectfully traversed.

Independent claims 24 and 31 recite layered structures that include at least the following layers in the order depicted:*

<u>Claim 24</u>		<u>Claim 31</u>
	Metallic Member	Cr or Cr alloy
	Barrier Layer	
	Au - Containing Solder	
	Active Metal	
	Ceramic Base	

Independent claim 24 requires the barrier layer to have a higher melting point than the solder and to protect against or suppress diffusion of a metal component from the metallic member into the solder material. There is no disclosure in Tsuno of the presently claimed barrier layer.

* The claims do not exclude the presence of other layers interposed between the layers depicted.

More specifically, Tsuno discloses a brazing metal 10 that can be used to join a metal to a ceramic or two ceramic members to one another. In the case of joining a metal to a ceramic, the brazing metal 10 includes a plate shaped metal substrate 1 and a metal layer 2 formed on one surface of the substrate 1. In the case of joining two ceramic members together, the brazing metal 20 includes the metal substrate 1 and two metal layers 2, 3 formed on opposed surfaces of the metal substrate 1 (see Tsuno Fig. 2 and Col. 4, lines 60-64).

Fig. 3 of Tsuno shows the use of brazing metal 10 to join a ceramic member 4 to a metallic member 6. In this case, there is only a single metal layer 2 on the metal substrate 1 of the brazing metal 10. Tsuno discloses the materials that could be used for the metal layer 2 in column 2, line 51 -- column 3, line 8. Fig. 3 of Tsuno also shows that a “metal plating” 5 can be coated on the metallic member 6 “if necessary” (Col. 7, lines 2-4). There is absolutely no disclosure, however, of the material that is used for the metal plating 5.

When comparing Fig. 3 from Tsuno with the sketch provided above depicting the layers recited in claim 24, it can be seen that the “metal plating” 5 of Tsuno resides in the same position as the claimed barrier layer. Again, however, there is absolutely no disclosure in Tsuno of the material that is used for the metal plating 5 or its function. Pending claim 24, on the other hand, specifically recites that the barrier layer has a higher melting point than the solder and also recites that the barrier layer protects against or suppresses the diffusion of a metal component from the metallic member into the solder material. There is absolutely no disclosure in Tsuno of these features recited in pending claim 24.

Based on the distinctions outlined above, Examiner Edmondson agreed during the interview that the rejection of claim 24 over Tsuno would be withdrawn.

Independent claim 31 differs from claim 24, in that there is no express recitation in claim 31 of a barrier layer and the metallic member is limited to Cr or an alloy composed essentially of Cr. The metallic member 6 in Tsuno is not Cr or an alloy composed essentially of Cr. Please see Table 1 of Tsuno, wherein the metallic member 6 is listed as being Kovar, Mo or Fe-42 Ni.

Since Tsuno does not disclose that the metallic member 6 is Cr or an alloy composed essentially of Cr, it does not disclose the features of pending claim 31.

Independent claim 32 is similar to claim 31, but also requires the solder material to include a metal which is active to the ceramic constituting the ceramic base. For the same reasons explained above with respect to claim 31, however, independent claim 32 defines patentable subject matter over Tsuno.

For at least the foregoing reasons, Applicants respectfully request that all grounds of rejection based on Tsuno be reconsidered and withdrawn.

2. Claims 24 and 31-33 were rejected under §103 over DiGiacomo et al. This rejection is respectfully traversed.

As explained above, independent claim 24 requires a barrier layer to be interposed between the metallic member and the Au-containing solder. As clearly depicted in the drawings in DiGiacomo, however, the “metallic member” 24 is joined directly to the solder layer 22; there is no barrier layer interposed between these two items. During the interview, Examiner Edmondson agreed that the rejection of claim 24 based on DiGiacomo would be withdrawn.

With respect to independent claims 31 and 32, there is no disclosure in DiGiacomo that the “metallic member” 24 is Cr or an alloy composed essentially of Cr, as claimed.

For at least the foregoing reasons, Applicants respectfully request that all grounds of rejection based on DiGiacomo be reconsidered and withdrawn.